REDMOND GEOTECHNICAL SERVICES

Geotechnical Investigation Services

Proposed Pacific Seafood Greenfield

Processing/Distribution Facility Site

8007 44th Avenue West

Mukilteo (Snohomish County), Washington

for

FEE Architecture and Engineering, Inc.

Project No. 1390.001.G
May 1, 2015

REDMOND GEOTECHNICAL SERVICES

May 1, 2015

Mr. Dave Franklin
FFE Architecture and Engineering, Inc.
201 East Lincoln Avenue, Suite 200
Yakima, Washington 98901

Dear Mr. Franklin:

Re: Geotechnical Investigation Services, Proposed Pacific Seafood Greenfield Processing/Distribution Facility Site, 8007 44th Avenue West, Mukilteo (Snohomish County), Washington

Submitted herewith is our report entitled "Geotechnical Investigation Services, Proposed Pacific Seafood Greenfield Processing/Distribution Facility Site, 8007 44th Avenue West, Mukilteo (Snohomish County), Washington". The scope of our services was outlined in our formal proposal to Mr. Bill Marczewski of C.D. Pacific Seafood Group dated February 17, 2015. Written authorization of our services was provided by Mr. Bill Marczewski of Pacific Seafood Group on March 5, 2015.

During the course of our investigation, we have kept you and/or others advised of our schedule and preliminary findings. We appreciate the opportunity to assist you with this phase of the project. Should you have any questions regarding this report, please do not hesitate to call.

Sincerely,

Daniel M. Redmond, P.E., G.E.
President/Principal Engineer

cc: Mr. Bill Marczewski, P.E.
Pacific Seafood Group

Mr. Shep Cutler
Fisher Construction Group

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TABLE OF CONTENTS

Table of Contents (continued)

GEOTECHNICAL INVESTIGATION SERVICES
PROPOSED PACIFIC SEAFOOD GREENFIELD PROCESSING/DISTRIBUTION FACILITY SITE
8007 44TH AVENUE WEST
MUKILTEO (SNOHOMISH COUNTY), WASHINGTON

INTRODUCTION

Redmond Geotechnical Services, LLC is please to submit to you the results of our Geotechnical Investigation at the site of the proposed Pacific Seafood Greenfield Processing/Distribution Facility located to the southeast of the intersection of 44th Avenue West and 80th Street SW in Mukilteo (Snohomish County), Washington. The general location of the subject site is shown on the Site Vicinity Map, Figure No. 1. The purpose of our geotechnical investigation services at this time was to explore the existing subsurface soils and/or groundwater conditions across the subject site and to develop and/or provide appropriate geotechnical design and construction recommendations for the proposed new processing and/or distribution facility project.

PROJECT DESCRIPTION

Based on a review of the proposed site development plan, we understand that present plans for the project will consist of the construction of one (1) new processing and/or distribution facility building. Although the processing and/or distribution facility project is still in the final planning and design stage, we understand that the project will result in the construction of an approximate 63,777 square feet concrete tilt-up structure with steel framing which will house multi-temperature rooms ranging from +32 degrees F storage rooms to a -10 degrees F freezer room as well as other warehouse dry storage, office and employee areas. Additionally, we understand that the new processing and distribution building will be designed to have a common finish floor elevation which will be a dock high facility that will allow for Over the Road (OTR) trucks and trailers to back against the Cool loading dock. Further, we understand that the processing and distribution building height will be approximately 35 feet at the roof peak with an additional 10 feet for mechanical equipment.

Support of the new processing and distribution facility structure is anticipated to include both conventional shallow individual (column) footings and strip (continuous) footings. Structural loading information, although unavailable at this time, is anticipated to be fairly typical for this type of concrete tilt-up and/or warehouse structure and is expected to result in maximum dead plus live continuous (strip) and individual (column) footing loads on the order of about 5.0 to 6.0 kips per lineal foot (klf) and 100 to 120 kips, respectively.

MUKILTEO QUADRANGLE
WASHINGTON
7.5 MINUTE SERIES (TOPOGRAPHIC)

SCALE 1:24 000

1 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
DEPTH CURVES AND SOUNDINGS IN FEET—DATUM IS MEAN LOWER LOW WATER

SITE VICINITY MAP

Project No. 1390.001.G	**PACIFIC SEAFOODS DISTRIBUTION FACILITY**	Figure No. 1

Earthwork and grading operations associated with bringing the subject property to finish design grades are unknown at this time. However, based on the existing sloping site grades, we anticipated that some cuts and/or fills on the order of approximately two (2) to four (4) feet will likely be required in order to lower the higher westerly portion of the site and raise the lower easterly portion of the site.

Other associated site improvements for the project will include new underground utility services, concrete curbs and sidewalks, and landscaping as well as new paved (concrete and/or asphalt) parking and drive areas for automobiles as well as both 18 kip single axle and 34 kip tandem axle trucks and trailers.

SCOPE OF WORK

The purpose of our geotechnical studies was to evaluate the overall site subsurface soil and/or groundwater conditions underlying the site with regard to the proposed new processing and distribution facility construction at the site and any associated impacts or concerns with respect to the processing and distribution center as well as provide appropriate geotechnical design and construction recommendations for the project. Specifically, our geotechnical investigation included the following scope of work items:

1. A detailed field reconnaissance and subsurface exploration program of the soil and ground water conditions underlying the site by means of seventeen (17) exploratory test borings. The exploratory test borings were drilled to depths ranging from about five (9) to fifteen (15) feet beneath existing site grades with track mounted auger drilling equipment at the approximate locations as shown on the Site Exploration Map, Figure No. 2. Additionally, representative samples of the subsurface soils encountered at the site were collected and returned to our laboratory for further examination and testing.

2. Laboratory testing to evaluate and identify pertinent physical and engineering properties of the subsurface soils encountered relative to the planned site development and construction at the site. The laboratory testing program included tests to help evaluate the natural (field) moisture content and dry density, maximum dry density and optimum moisture content, gradational characteristics, and Atterberg Limits as well as direct shear strength, consolidation and "R"-value testing.

3. A literature review and engineering evaluation and assessment of the regional seismicity to evaluate the potential ground motion hazard(s) at the subject site. The evaluation and assessment included a review of the regional earthquake history and sources such as potential seismic sources, maximum credible earthquakes, and reoccurrence intervals as well as a discussion of the possible ground response to the selected design earthquake(s), fault rupture, landsliding, liquefaction, and tsunami and seiche flooding.

4. Engineering analyses utilizing the field and laboratory data as a basis for furnishing recommendations for foundation support of the proposed new processing and distribution facility structure. Recommendations include maximum design allowable contact bearing pressure(s), depth of footing embedment, estimates of foundation settlement, lateral soil resistance, and foundation subgrade preparation. Additionally, construction and/or permanent subsurface water drainage considerations have also been prepared. Further, our report includes recommendations regarding site preparation, placement and compaction of structural fill materials, suitability of the on-site soils for use as structural fill, criteria for import fill materials, and preparation of foundation, pavement and/or floor slab subgrades.

5. Development of various flexible and rigid pavement design sections for both automobile and heavy truck access drive and parking areas.

SITE CONDITIONS

Site Geology

Much of the Puget Sound region was affected by past intrusion of continental glaciation. The last period of glaciation, the Vashon Stade, ended approximately 10,000 to 11,000 years ago. Many of the geomorphic features seen today are a result of scouring and overriding by glacial ice. During the Vashon Stade, the Puget Sound region was overridden by over 3,000 feet of ice. Soil layers overridden by the ice sheet were compacted to a much greater extent than those that were not. A typical sequence includes recessional outwash sand, overlying glacial till or drift, underlain by advance outwash.

Available geologic mapping of the area and/or subject site as shown on the Distribution and Description of Geologic Units in the Mukilteo Quadrangle, Washington by James P. Minard (1982) indicates that the near surface soils consist of glacial till (Qvt). The glacial till unit is described as a non-sorted mixture of clay, silt, sandy, pebbles, and cobbles.

Surface Conditions

The subject property is generally irregular in shape and encompassing a total area of approximately 5.07 acres. The subject property is roughly bounded to the west 44th Avenue West and to the north, south and east by existing and/or developed commercial and/or industrial properties.

The northwesterly portion of the subject site is presently improved which includes two (2) existing commercial and/or shop structures and a mobile home structure as well as paved and/or graveled vehicle parking. Additionally, the northwesterly portion of the site contains an existing concrete slab believed to be associated with a prior structure. Further, the remainder of the easterly and southerly portions of the site are presently unimproved.

Surface vegetation across the unimproved portion of the site generally consists of a moderate growth of grass and weeds as well as some brush while the area around the existing structures also contains some trees.

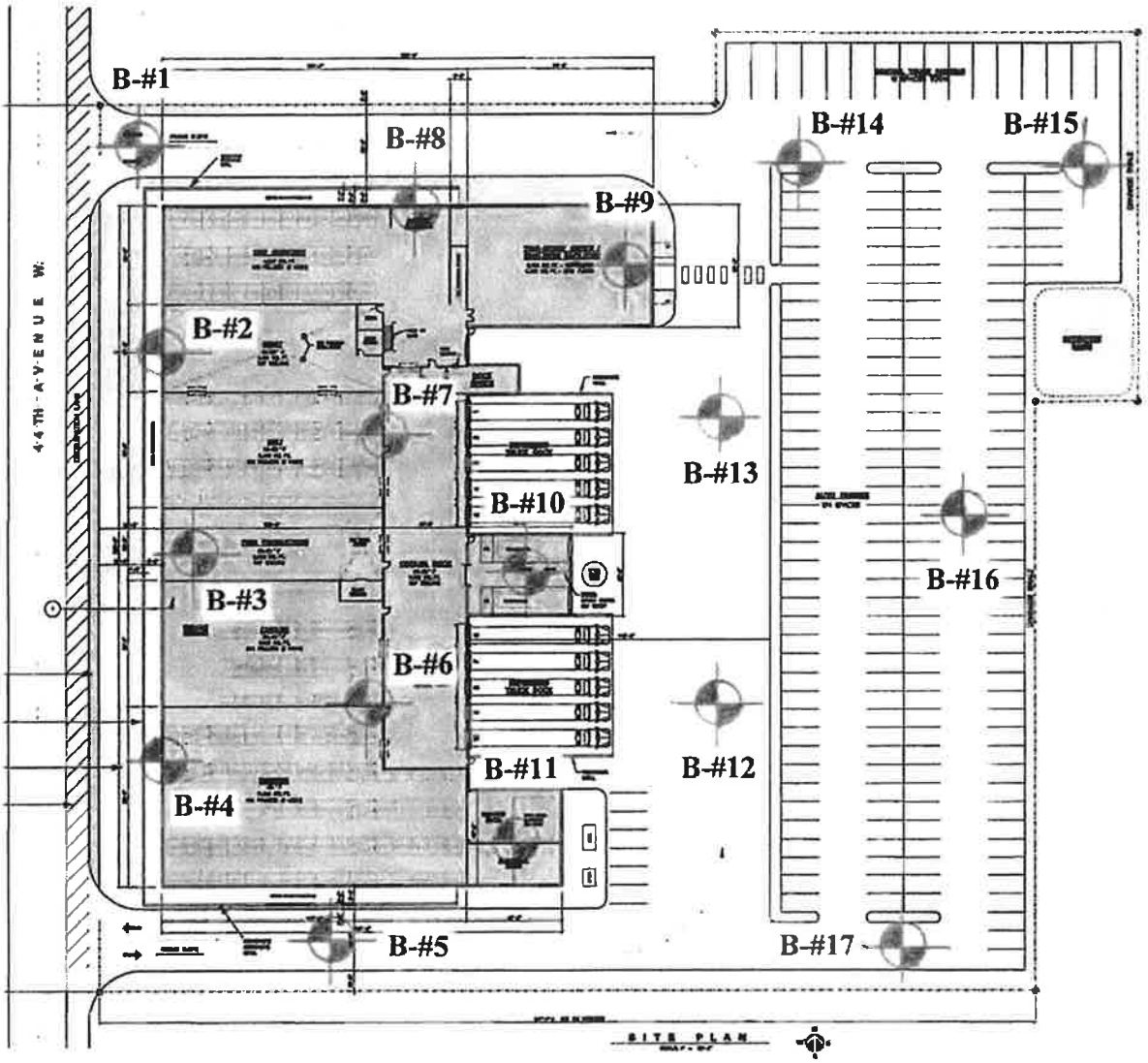
Topographically, the site is characterized as gently sloping terrain (5 to 10 percent) descending downward towards the northeast with overall topographic relief estimated at about fourteen (14) feet and is estimated to lie between a low of about Elevation 570 feet near the northeasterly corner of the site to a high of about Elevation 586 feet near the southwesterly portion of the site. However, the southwesterly portion of the site has been elevated above its natural site grades with stockpiles which lie at about Elevation 590 feet.

Subsurface Soil Conditions

Our understanding of the subsurface soil conditions underlying the site was developed by means of seventeen (17) exploratory test borings drilled to depths ranging from about five (5) to fifteen (15) feet beneath existing site grades on April 10, 2015 with track mounted auger drilling equipment. The location of the exploratory test borings were located in the field by marking off distances from existing and/or known site features and are shown in relation to the existing and/or proposed site improvements on the Site Exploration Map, Figure No. 2. Detailed logs of the test boring explorations, presenting conditions encountered at each location explored, are presented in the Appendix, Figure No's. A-5 through A-21.

The exploratory test boring excavations performed during this study were observed by staff from Redmond Geotechnical Services, LLC who logged each of the test boring explorations and obtained representative samples of the subsurface soils encountered across the site. Additionally, the elevation of the exploratory test boring excavations were referenced from a Boundary & Topographic Survey prepared by GeoDimensions dated March 24, 2015 and should be considered as approximate. All subsurface soils encountered at the site and/or within the exploratory test boring excavations were logged and classified in general conformance with the Unified Soil Classification System (USCS) which is outlined on Figure No. A-4.

The test boring explorations revealed that the subject site is generally underlain by native soil deposits comprised of glacial drift and/or till deposits of Pleistocene age. However, localized fill soils were also encountered at the site. Specifically, the subsurface soils underlying the project area generally consists of a surficial layer of topsoil materials comprised of about 8 to 18 inches of dark brown, very moist to saturated, very soft to soft, organic to highly organic, sandy, clayey silt. These surficial topsoil materials were inturn underlain by native residual soils composed of an upper layer of medium to orangish-brown, very moist to saturated, loose to medium dense, clayey, silty sand with occasional gravel and roots subgrade soils to depths ranging from about 2 to 3 feet beneath the existing site and/or surface grades. This upper layer of residual soils is considered to be highly weathered glacial drift and is best characterized by relatively low strength and moderately to high compressibility. This upper layer of glacial drift was inturn underlain by gray to gray-brown, very moist, medium dense to dense, clayey, silty sand with gravel and cobbles to the maximum depth explored of about fifteen (15) feet beneath existing site and/or surface grades.



LEGEND

B-#17 Indicates approximate location of exploratory drilled test boring

Approximate Scale: 1"=90'

SITE EXPLORATION PLAN

Project No. 1390.001.G	PACIFIC SEAFOODS DISTRIBUTION FACILITY	Figure No. 2

This underlying unit represents the glacial till bedrock deposits and are best characterized by relatively high strength and low compressibility. However, areas of fill soil and/or surface improvements were also found to be present at the site. Specifically, the northwesterly portion of the site contains various gravel base rock and concrete pavements/slabs of approximately 6 inches in depth and/or thickness. Additionally, the central, southerly and easterly portions of the site contain a 6 to 24 inch layer of bark chips. Further, the southwesterly portion of the site contains two (2) large spoil piles which contain approximately 6 to 8 feet of uncompacted silty sand soils. In addition to the above, other evidence of fill placement was observed at the site and to the east of the existing site improvements and/or concrete slab which was observed to consist of a mixture of soil with miscellaneous wood and construction debris.

Groundwater

Groundwater was generally not encountered within any of the exploratory test boring explorations (B-#1 through B-#17) at the time of drilling to depths of at least fifteen (15) feet beneath existing site grades. However, several of the test borings drilled across the central and/or easterly portion of the site encountered seepage. Based on a review of available water wells in the area, the apparent depth to seasonal high groundwater in the area of the subject site is greater than 20 feet. However, groundwater elevations at and/or below the subject site may fluctuate seasonally in accordance with rainfall conditions as well as changes in site utilization. Additionally, due to the presence of relatively low permeability within the underlying medium dense to dense, clayey, silty sand with gravel and cobble glacial till bedrock deposits, surface water was observed to be perch near to and/or at the ground surface at the time of our field work and/or during periods of peak and/or prolonged rainfall.

LABORATORY TESTING

Representative samples of the on-site subsurface soils were collected at selected depths and intervals from various test boring explorations and returned to our laboratory for further examination and testing and/or to aid in the classification of the subsurface soils as well as to help evaluate and identify their engineering strength and compressibility characteristics. The laboratory testing consisted of visual and textural sample inspection, moisture content and dry density determinations, maximum dry density and optimum moisture content, gradation analyses and Atterberg Limits as well as direct shear strength, consolidation and "R"-value tests. Results of the various laboratory tests are presented in the Appendix, Figure No's. A-22 through A-29.

SEISMICITY AND EARTHQUAKE SOURCES

The seismicity of the northwest Wasnington as well as the Seattle and/or Everett areas, and hence the potential for ground shaking, is controlled by three separate fault mechanisms. These include the Cascadia Subduction Zone (CSZ), the mid-depth intraplate zone, and the relatively shallow crustal zone. Descriptions of these potential earthquake sources are presented below.

The CSZ is located offshore and extends from northern California to British Columbia. Within this zone, the oceanic Juan de Fuca Plate is being subducted beneath the continental North American Plate to the east. The interface between these two plates is located at a depth of approximately 15 to 20 kilometers (km). The seismicity of the CSZ is subject to several uncertainties, including the maximum earthquake magnitude and the recurrence intervals associated with various magnitude earthquakes. Anecdotal evidence of previous CSZ earthquakes has been observed within coastal marshes along the Washington and Oregon coastlines. Sequences of interlayered peat and sands have been interpreted to be the result of large Subduction zone earthquakes occurring at intervals on the order of 300 to 500 years, with the most recent event taking place approximately 300 years ago. A recent study by Geomatrix (1995) suggests that the maximum earthquake associated with the CSZ is moment magnitude (Mw) 8 to 9. This is based on an empirical expression relating moment magnitude to the area of fault rupture derived from earthquakes that have occurred within Subduction zones in other parts of the world. An Mw 9 earthquake would involve a rupture of the entire CSZ. As discussed by Geomatrix (1995) this has not occurred in other subduction zones that have exhibited much higher levels of historical seismicity than the CSZ, and is considered unlikely. For the purpose of this study an earthquake of Mw 8.5 was assumed to occur within the CSZ.

The intraplate zone encompasses the portion of the subducting Juan de Fuca Plate located at a depth of approximately 30 to 50 km below western Washington and western Oregon. Very low levels of seismicity have been observed within the intraplate zone in western Oregon and western Washington. However, much higher levels of seismicity within this zone have been recorded in Washington and California. Several reasons for this seismic quiescence were suggested in the Geomatrix (1995) study and include changes in the direction of Subduction between Oregon, Washington, and British Columbia as well as the effects of volcanic activity along the Cascade Range. Historical activity associated with the intraplate zone includes the 1949 Olympia magnitude 7.1 and the 1965 Puget Sound magnitude 6.5 earthquakes. Based on the data presented within the Geomatrix (1995) report, an earthquake of magnitude 7.25 has been chosen to represent the seismic potential of the intraplate zone.

The third source of seismicity that can result in ground shaking within the Seattle/Everett and northwest Washington area is near-surface crustal earthquakes occurring within the North American Plate. The historical seismicity of crustal earthquakes in this area is higher than the seismicity associated with the CSZ and the intraplate zone.

Liquefaction

Seismic induced soil liquefaction is a phenomenon in which lose, granular soils and some silty soils, located below the water table, develop high pore water pressures and lose strength due to ground vibrations induced by earthquakes. Soil liquefaction can result in lateral flow of material into river channels, ground settlements and increased lateral and uplift pressures on underground structures. Buildings supported on soils that have liquefied often settle and tilt and may displace laterally. Soils located above the ground water table cannot liquefy, but granular soils located above the water table may settle during the earthquake shaking.

Our review of the subsurface soil test boring logs from our exploratory field explorations (B-#1 through B-#17) and laboratory test results indicates that the site is generally underlain by medium dense to dense, clayey, silty sand glacial till deposits to depths of at least 15.0 feet beneath existing site grades.

As such, due to the medium dense to dense characteristics of the underlying clayey, silty sand glacial till bedrock deposits beneath the site, it is our opinion that the soil deposits located beneath the subject site do not have the potential for liquefaction during the design earthquake motions previously described. A more detailed liquefaction assessment was not part of the scope of work for this Geotechnical Investigation.

Landslides

No ancient and/or active landslides were observed or are known to be present on the subject site. Additionally, due to the relatively flat-lying to gently sloping nature of the subject site, the risk of seismic induced slope instability at the site resulting in landslides and/or lateral earth movements does not appear to present a potential geologic hazard.

Surface Rupture

Although the site is generally located within a region of the country known for seismic activity, no known faults exist on and/or immediately adjacent to the subject site. As such, the risk of surface rupture due to faulting is considered negligible.

Tsunami and Seiche

A tsunami, or seismic sea wave, is produced when a major fault under the ocean floor moves vertically and shifts the water column above it. A seiche is a periodic oscillation of a body of water resulting in changing water levels, sometimes caused by an earthquake. Tsunami and seiche are not considered a potential hazard at this site because the site is not near to the coast and/or there are no adjacent significant bodies of water.

Flooding and Erosion

Stream flooding is a potential hazard that should be considered in lowland areas of Snohomish County and Mukilteo. The FEMA (Federal Emergency Management Agency) flood maps should be reviewed as part of the design for the proposed new auto dealership structure and any associated site improvements. Elevations of structures on the site should be designed based upon consultants reports, FEMA (Federal Emergency Management Agency), and Snohomish County requirements for the 100-year flood levels of any nearby creeks and/or streams.

CONCLUSIONS AND RECOMMENDATIONS

General

Based on the results of our field explorations, laboratory testing, and engineering analyses, it is our opinion that the site is suitable for the proposed new Pacific Seafood Greenfield Processing and Distribution facility and its associated site improvements provided that the recommendations contained within this report are properly incorporated into the design and construction of the project.

The primary features of concern at the site are 1) the presence of the existing site and/or surface improvements across the northwesterly portion of the site, 2) the presence of existing fill materials at the site, 3) the presence of the extensive layer of topsoil materials across the site, 4) the presence of the upper layer of medium to orangish-brown, loose, clayey, silty sand subgrade soils, 5) the presence of perched and/or surface water, and 6) the relatively dense glacial till bedrock deposits beneath the site.

In regards to the presence of the existing site and/or surface improvements within the northwesterly portion of the site, we are generally of the opinion that carefully monitoring of the site grading and earthwork activities will be required by the Geotechnical Engineer to ensure that all of the old foundation remnants, surface improvements and/or old utility services are properly removed and/or abandoned prior to the placement of any new structural fills and/or site improvements.

With regard to the presence of existing fill materials at the site, we are of the opinion that the fill materials are likely undocumented. Additionally, much of the surficial fill consists of bark chips. Further, the fill materials appear to be poorly compacted and are generally unsuitable for support of the proposed new site improvements. As such, we are generally of the opinion that all of the existing fill soil materials be removed in their entirety down to an approved native subgrade. Additionally, if during the upcoming site grading and earthwork operations it is determined that the existing fill materials contain deleterious materials and/or significant organics, the existing fill materials would be considered unsuitable for use/reuse as structural fill and/or support of the planned new site improvements. However, existing fill materials which are generally free of organics and/or deleterious materials, such as the large stockpiles located in the southwesterly portion of the site, may be used/re-used as structural fill if approved by the Geotechnical Engineer.

In regards to the presence of the extensive layer of topsoil materials across the site, we are generally of the opinion that stripping depths of about 1.0 to 1.5 feet will likely be required during the clearing and site preparation work for the project. However, additional stripping and clearing will be required in areas where the topsoil materials are covered by surficial fill materials.

With regard to the presence of the upper layer of medium to orangish-brown, loose, clayey, silty sand subgrade soils, these soil deposits are believed to represent highly weathered glacial drift. Additionally, these clayey, silty sand soil deposits are presently loose and contain pockets of medium to large sized roots. Further, in their present condition, these loose clayey, silty sand subgrade soils possess low strength and high compressibility characteristics. As such, we are of the opinion that these upper clayey, silty sand subgrade soils should be removed in their entirety down to the surface of the medium dense to dense, clayey, silty sand glacial till bedrock deposits. However, use/re-use of the upper glacial drift soil deposits as structural fill soil may be considered acceptable and approved by the Geotechnical Engineer if the roots and/or organic matter is suitably removed.

In regards to the presence of perched and/or surface water at the site, we are generally of the opinion that all site grading and earthwork operations for the project be performed during the drier summer months which is typically June through September.

With regard to the relatively dense glacial till bedrock deposits beneath the site, we are of the opinion that these glacial till bedrock deposits will provide suitable support of foundations and/or site improvements. However, hard and/or difficult excavation conditions should be anticipated for site excavations which extend into the glacial till deposits.

The following sections of this report provide specific recommendations regarding subgrade preparation and grading as well as foundation and floor slab design and construction for the new Pacific Seafood Greenfield Processing and Distribution Facility project.

Site Preparation

As an initial step in site preparation, we recommend that the proposed new processing and distribution facility building area(s) and its associated structural and/or site improvement area(s) be stripped and cleared of all existing improvements, any existing unsuitable and/or undocumented fill materials, surface debris, existing vegetation, topsoil materials, and/or any other deleterious materials present at the time of construction. In general, we envision that the site stripping to remove existing surface improvements and/or topsoil materials as well as undocumented fill materials will generally be about 6 to 24 inches. However, localized areas requiring deeper removals, such as old foundation remnants as well as the stockpiled undocumented fill materials, will be encountered and should be evaluated at the time of construction by the Geotechnical Engineer. The stripped and cleared materials should be generally be disposed of as they are generally considered organic and unsuitable for use/reuse as structural fill materials. Additionally and as previously noted, following the site clearing and stripping,

Following the completion of the site stripping and clearing work and prior to the placement of any required structural fill materials and/or structural improvements, the upper medium to orangish-brown and loose, clayey, silty sandand/or highly weathered glacial drift subgrade soils should be removed in their entirety down to the surface of the medium dense to dense glacial till bedrock deposits.

The on-site native clayey, silty sand subgrade soil materials are generally considered suitable for use/reuse as structural fill materials provided that they are free of organic materials, debris, and rock fragments in excess of about 6 inches in dimension. However, if site grading is performed during wet or inclement weather conditions, the use of the on-site native soil materials which contain significant silt and clay sized particles will be difficult at best. In this regard, during wet or inclement weather conditions, we recommend that an import structural fill material be utilized which should consist of a free-draining (clean) granular fill (sand & gravel) containing no more than about 5 percent fines. Representative samples of the materials which are to be used as structural fill materials should be submitted to the Geotechnical Engineer and/or laboratory for approval and determination of the maximum dry density and optimum moisture content for compaction.

In general, all site earthwork and grading activities should be scheduled for the drier summer months (June through September) if possible. However, if wet weather site preparation and grading is required, it is generally recommended that the stripping of the existing undocumented fill materials as well as the topsoil materials and/or underlying loose highly weathered glacial drift subgrade soils be accomplished with a tracked excavator utilizing a large smooth-toothed bucket working from areas yet to be excavated. Additionally, the loading of strippings into trucks and/or protection of moisture sensitive subgrade soils may also be required during wet weather grading and construction. Further, we recommend that areas in which construction equipment will be traveling over moisture sensitive subgrade soils be protected by covering the exposed subgrade soils with a geotextile fabric such as Mirafi 600nx followed by at least 12 inches or more of crushed aggregate base rock. The geotextile fabric should have a minimum Mullen burst strength of at least 250 pounds per square inch for puncture resistance and an apparent opening size (AOS) between the U.S. Standard No. 70 and No. 100 sieves.

All structural fill materials placed within the new processing and distribution facility building and/or pavement areas should be moistened or dried as necessary to near (within 3 percent) optimum moisture conditions and compacted by mechanical means to a minimum of 92 percent of the maximum dry density as determined by the ASTM D-1557 (AASHTO T-180) test procedures. Structural fill materials should be placed in lifts (layers) such that when compacted do not exceed about 8 inches. Additionally, all fill materials placed within five (5) lineal feet of the perimeter (limits) of the proposed new processing and distribution facility structure and/or pavements should be considered structural fill. All aspects of the site grading should be monitored and approved by a representative of Redmond Geotechnical Services, LLC.

Foundation Support

Based on the results of our investigation, it is our opinion that the site of the proposed new processing and distribution facility is suitable for support of the concrete tilt-up and steel framed structure provided that the following foundation design recommendations are followed. The following sections of this report present specific foundation design and construction recommendations for the planned new processing and distribution facility structure.

Shallow Foundations

In general, conventional shallow continuous (strip) footings and individual (spread) column footings may be supported by properly placed and approved structural fill soils based on an allowable contact bearing pressure of about 2,500 pounds per square foot (psf). However, where higher allowable contact bearing pressures are desired and/or required, an allowable contact bearing pressure of 3,000 psf may be used for design where foundations are supported by the existing medium dense to dense, clayey, silty sand glacial till bedrock deposits. These recommended allowable contact bearing pressures are intended for dead loads and sustained live loads and may be increased by one-third for the total of all loads including short-term wind or seismic loads. In general, continuous strip footings should have a minimum width of at least 16 inches and be embedded at least 18 inches below the lowest adjacent finish grade (includes frost protection). Individual column footings (where required) should be embedded at least 18 inches below grade and have a minimum width of at least 24 inches.

Total and differential settlements of foundations constructed as recommended above and supported by approved structural fill materials and/or native medium dense to dense, clayey, silty sand glacial till bedrock deposits are expected to be well within the tolerable limits for this type of concrete tilt-up and steel framed structure and should generally be less than about 1-inch and 1/2-inch, respectively.

Allowable lateral frictional resistance between the base of the footing element and the supporting subgrade bearing soil can be expressed as the applied vertical load multiplied by a coefficient of friction of 0.35 and 0.50 for native structural fill materials or the medium dense to dense, clayey, silty sand glacial till bedrock deposits, respectively. In addition, lateral loads may be resisted by passive earth pressures on footings poured "neat" against in-situ (native) subgrade soils or properly backfilled with structural fill materials based on an equivalent fluid density of 300 pounds per cubic foot (pcf). This recommended value includes a factor of safety of approximately 1.5 which is appropriate due to the amount of movement required to develop full passive resistance.

Floor Slab Support

In order to provide uniform subgrade reaction beneath concrete slab-on-grade floors, we recommend that the floor slab area be underlain by a minimum of 6 inches of free-draining (less than 5 percent passing the No. 200 sieve), well-graded, crushed rock. The crushed rock should help provide a capillary break to prevent migration of moisture through the slab. Additional moisture protection, where needed, can be provided by using a 15-mil polyolefin geo-membrane sheeting such as StegoWrap.

The base course materials should be compacted to at least 95 percent of the maximum dry density as determined by the ASTM D-1557 (AASHTO T-180) test procedures. Where floor slab subgrade materials are undisturbed, firm and stable and where the underslab aggregate base rock section has been prepared and compacted as recommended above, we recommend that a modulus of subgrade reaction of 250 pci be used for design.

Retaining/Below Grade Walls

Retaining and/or below grade walls should be designed to resist lateral earth pressures imposed by native soils or granular backfill materials as well as any adjacent surcharge loads. For walls which are unrestrained at the top and free to rotate about their base, we recommend that active earth pressures be computed on the basis of the following equivalent fluid densities:

Non-Restrained Retaining Wall Pressure Design Recommendations

Slope Backfill (Horizontal/Vertical)	Equivalent Fluid Density/Sand (pcf)	Equivalent Fluid Density/Gravel (pcf)
Level	35	30
3H:1V	60	50
2H:1V	90	80

For walls which are fully restrained at the top and prevented from rotation about their base, we recommend that at-rest earth pressures be computed on the basis of the following equivalent fluid densities:

Restrained Retaining Wall Pressure Design Recommendations

Slope Backfill (Horizontal/Vertical)	Equivalent Fluid Density/Sand (pcf)	Equivalent Fluid Density/Gravel (pcf)
Level	45	35
3H:1V	65	60
2H:1V	95	90

The above recommended values assume that the walls will be adequately drained to prevent the buildup of hydrostatic pressures. Where wall drainage will not be present and/or if adjacent surcharge loading is present, the above recommended values will be significantly higher.

Backfill materials behind walls should be compacted to 90 percent of the maximum dry density as determined by the ASTM D-1557 (AASHTO T-180) test procedures. Special care should be taken to avoid overcompaction near the walls which could result in higher lateral earth pressures than those indicated herein. In areas within three (3) to five (5) feet behind walls, we recommend the use of hand-operated compaction equipment.

Pavements

Flexible (AC) and rigid (PCC) pavement design for the project was determined on the basis of projected (anticipated) traffic volume and loading conditions relative to laboratory subgrade soil strength ("R"-value) characteristics. Based on a laboratory subgrade "R"-value of 32 (Resilient Modulus = 5,000 to 10,000) and utilizing the Asphalt Institute Flexible Pavement Design Procedures and/or the American Association of State Highway and Transportation Officials (AASHTO) 1993 "Design of Pavement Structures" manual, we recommend that the flexible asphaltic concrete (AC) and/or rigid Portland Cement Concrete (PCC) pavement section(s) for the automobile and truck drive and/or parking areas at the site consist of the following:

	Asphaltic Concrete Thickness (inches)	**Crushed Base Rock** Thickness (inches)
Automobile Drive & Parking Areas	3.0	9.0
Heavy Truck traffic Areas	5.0	12.0

	Portland Cement Concrete Thickness (inches)	**Crushed Base Rock** Thickness (inches)
Automobile Parking & Drive Areas	5.0	4.0
Heavy Truck Traffic Areas	7.5	6.0

Note: For wet weather construction, we recommend a minimum gravel base rock thickness of at least 12 inches. Additionally, the above recommended flexible and rigid pavement section(s) assumes a design life of 20 and 40 years, respectively. Further, the rigid PCC pavement design assumes a minimum Modulus of Rupture (M.R.) of 3rd point loading of 650 psi and minimum 28 day concrete strength of 4,000 psi.

Pavement Subgrade, Base Course & Asphalt Materials

The above recommended pavement section(s) were based on the design assumptions listed herein and on the assumption that construction of the pavement section(s) will be completed during an extended period of reasonably dry weather. All thicknesses given are intended to be the minimum acceptable. Increased base rock sections and the use of geotextile fabric may be required during wet and/or inclement weather conditions and/or in order to adequately support construction traffic and protect the subgrade during construction. Additionally, the above recommended pavement section(s) assume that the subgrade will be prepared as recommended herein, that the exposed subgrade soils will be properly protected from rain and construction traffic, and that the subgrade is firm and unyielding at the time of paving. Further, it assumes that the subgrade is graded to prevent any ponding of water which may tend to accumulate in the base course.

Pavement base course materials should consist of well-graded 1-1/4 inch and/or 5/8-inch minus crushed base rock having less than 5 percent fine materials passing the No. 200 sieve. The base course and asphaltic concrete materials should conform to the requirements set forth in the latest edition of the Washington Department of Transportation, Standard Specifications for Highway Construction. The base course materials should be compacted to at least 95 percent of the maximum dry density as determined by the ASTM D-1557 (AASHTO T-180) test procedures. The asphaltic concrete paving materials should be compacted to at least 92 percent of the theoretical maximum density as determined by the ASTM D-2041 (Rice Gravity) test method.

Excavation/Slopes

Temporary excavations of up to about four (4) feet in depth may be constructed with near vertical inclinations. Temporary excavations greater than about four (4) feet but less than eight (8) feet should be excavated with inclinations of at least 1 to 1 (horizontal to vertical) or properly braced/shored. Where excavations are planned to exceed about eight (8) feet, this office should be consulted. All shoring systems and/or temporary excavation bracing for the project should be the responsibility of the excavation contractor. Permanent cut and/or fill slopes should be constructed no steeper than 2H:1V.

Depending on the time of year in which trench excavations occur, trench dewatering may be required in order to maintain dry working conditions if the invert elevations of the proposed utilities are located at and/or below the groundwater level. If groundwater is encountered during utility excavation work, we recommend placing trench stabilization materials along the base of the excavation. Trench stabilization materials should consist of 1-foot of well-graded gravel, crushed gravel, or crushed rock with a maximum particle size of 4 inches and less than 5 percent fines passing the No. 200 sieve. The material should be free of organic matter and other deleterious material and placed in a single lift and compacted until well keyed.

Surface Drainage/Ground Water

We recommend that positive measures be taken to properly finish grade the site so that drainage waters from the building and landscaping areas as well as adjacent properties or buildings are directed away from the new processing and distribution facility structure foundations and/or floor slabs. All roof drainage should be directed into conduits that carry runoff water away from the processing and distribution facility to a suitable outfall. Roof downspouts should not be connected to foundation drains. A minimum ground slope of about 2 percent is generally recommended in unpaved areas around the building.

Groundwater was generally not encountered at the site in any of the exploratory test borings (B-#1 through B-#17) at the time of drilling to depths of at least 15.0 feet beneath existing site grades. However, surface ponding was present at the time of our field work. Additionally, groundwater elevations in the area and/or beneath the subject site may fluctuate seasonally and may temporarily pond/perch near the ground surface during periods of prolonged rainfall.

As such, based on our current understand of the site grading required to bring the subject site to finish design grades, we are of the opinion that an underslab drainage system is not required for the proposed new processing and distribution facility structure. However, due to the presence of clayey, silty sand subgrade soils within the foundation bearing level of the proposed new processing and distribution facility structure, we are generally of the opinion that a footing/foundation drainage system should be utilized around the perimeter of the proposed processing and distribution facility structure. Additionally, a foundation drain is recommended for any below grade footing and/or retaining walls. A typical recommended perimeter footing and/or retaining wall drain detail is shown on Figure No. 3.

Seismic Design Considerations

Structures at the site should be designed to resist earthquake loading in accordance with the methodology described in the latest edition of the State of Washington Structural Specialty Code and/or Amendments to the 2012 International Building Code (IBC). The maximum considered earthquake ground motion for short period and 1.0 period spectral response may be determined from the Washington Structural Specialty Code and/or Figures 1613 (1) and 1613 (2) of the 2009 National Earthquake Hazard Reduction Program (NEHRP) "Recommended Provisions for Seismic Regulations for New Buildings and Other Structures" published by the Building Seismic Safety Council. We recommend Site Class "C" be used for design per Table 1613.5.2.

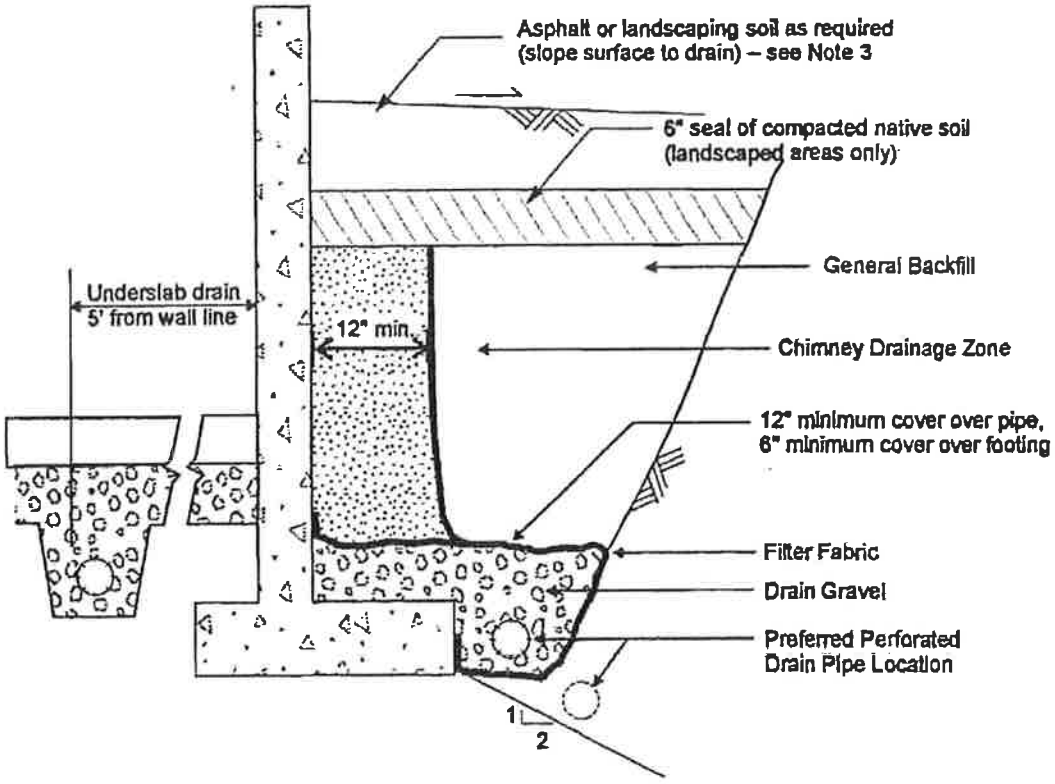
Using this information, the structural engineer can select the appropriate site coefficient values (F_a and F_v) from Tables 1613.5.3 (1) and 1613.5.3 (2) of the 2012 IBC to determine the maximum considered earthquake spectral response acceleration for the project. However, we have assumed the following response spectrum for the project:

Table 1. IBC Seismic Design Parameters

Site Class	S_S	S_1	F_a	F_v	S_{MS}	S_{M1}	S_{DS}	S_{D1}
C	1.450	0.564	1.000	1.300	1.450	0.733	0.967	0.489

Notes: 1. S_S and S_1 were established based on the USGS 2012 mapped maximum considered earthquake spectral acceleration maps for 2% probability of exceedence in 50 years.

2. F_a and F_v were established based on IBC 2012 tables 1613.5.3 (1) and 1613.5.3 (2) using the selected S_S and S_1 values.



SCHEMATIC - NOT TO SCALE

NOTES:

1. Filter Fabric to be non-woven geotextile (Amoco 4545, Mirafi 140N, or equivalent)
2. Lay perforated drain pipe on minimum 0.5% gradient, widening excavation as required. Maintain pipe above 2:1 slope, as shown.
3. All-granular backfill is recommended for support of slabs, pavements, etc. (see text for structural fill).
4. Drain gravel to be clean, washed ¾" to 1½" gravel.
5. General backfill to be on-site gravels, or ¾"-0 or 1½"-0 crushed rock compacted to 92% Modified Proctor (AASHTO T-180).
6. Chimney drainage zone to be 12" wide (minimum) zone of clean washed, medium to coarse sand or drain gravel if protected with filter fabric. Alternatively, prefabricated drainage structures (Miradrain 6000 or similar) may be used.

PERIMETER FOOTING/RETAINING WALL DRAIN DETAIL

Project No. 1390.001.G	PACIFIC SEAFOODS DISTRIBUTION FACILITY	Figure No. 3

CONSTRUCTION MONITORING AND TESTING

We recommend that **Redmond Geotechnical Services, LLC** be retained to provide construction monitoring and testing services during all earthwork operations for the proposed new processing and distribution facility project. The purpose of our monitoring services would be to confirm that the site conditions reported herein are as anticipated, provide field recommendations as required based on the actual conditions encountered, document the activities of the grading contractor and assess his/her compliance with the project specifications and recommendations. It is important that our representative meet with the contractor prior to grading to help establish a plan that will minimize costly overexcavation and site preparation work. Of primary importance will be observations made during site preparation, structural fill placement, footing excavations and construction as well as any retaining wall backfill.

CLOSURE AND LIMITATIONS

This report is intended for the exclusive use of the addressee and/or their representative(s) to use to design and construct the proposed new processing and distribution facility structure and its associated site improvements described herein as well as to prepare any related construction documents. The conclusions and recommendations contained in this report are based on site conditions as they presently exist and assume that the explorations are representative of the subsurface conditions between the explorations and/or across the study area. The data, analyses, and recommendations herein may not be appropriate for other structures and/or purposes. We recommend that parties contemplating other structures and/or purposes contact our office. In the absence of our written approval, we make no representation and assume no responsibility to other parties regarding this report. Additionally, the above recommendations are contingent on Redmond Geotechnical Services, LLC being retained to provide all site inspections and construction monitoring services associated with the site grading and earthwork operations as well as all foundation excavation and preparation work for this project. Redmond Geotechnical Services, LLC will not assume any responsibility and/or liability for any engineering judgment, inspection and/or testing services performed by others.

It is the owners/developers responsibility for insuring that the project designers and/or contractors involved with this project implement our recommendations into the final design plans, specifications and/or construction activities for the project. Further, in order to avoid delays during construction, we recommend that the final design plans and specifications for the project be reviewed by our office to evaluate as to whether our recommendations have been properly interpreted and incorporated into the project.

If during any future site grading and construction, subsurface conditions different from those encountered in the explorations are observed or appear to be present beneath excavations, we should be advised immediately so that we may review these conditions and evaluate whether modifications of the design criteria are required. We also should be advised if significant modifications of the proposed site development are anticipated so that we may review our conclusions and recommendations.

LEVEL OF CARE

The services performed by the Geotechnical Engineer for this project have been conducted with that level of care and skill ordinarily exercised by members of the profession currently practicing in the area under similar budget and time restraints. No warranty or other conditions, either expressed or implied, is made.

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Appendix "A"

Boring Logs and Laboratory Test Results

APPENDIX

FIELD EXPLORATIONS AND LABORATORY TESTING

FIELD EXPLORATION

Subsurface conditions at the site were explored by drilling seventeen (17) exploratory test borings on April 10, 2015. The approximate location of the test boring explorations are shown in relation to the existing and/or proposed new site improvements on the Site Exploration Map, Figure No. 2.

The test borings were drilled using track mounted auger drilling equipment in general conformance with ASTM Methods in Vol. 4.08, D-1586-94 and D-1587-83. The test borings were drilled to depths ranging from about 5.0 to 15.0 feet beneath existing site grades. Detailed logs of the test borings are presented on the Boring Logs, Figure No's. A-5 through A-21. The soils were classified in accordance with the Unified Soil Classification System (USCS), which is outlined on Figure No. A-4.

The exploration program was coordinated by a field engineer who monitored the drilling and exploration activity, obtained representative samples of the subsurface soils encountered, classified the soils by visual and textural examination, and maintained continuous logs of the subsurface conditions. Disturbed and/or undisturbed samples of the subsurface soils were obtained at appropriate depths and/or intervals and placed in plastic bags and/or with a thin walled ring sample.

Groundwater was generally not encountered within any of the exploratory test borings (B-#1 through B-#17) at the time of drilling at depths of between five (5) to fifteen (15) feet beneath existing site grades. However, perched surface water was present at the site at the time of our field work.

LABORATORY TESTING

Pertinent physical and engineering characteristics of the soils encountered during our subsurface investigation were evaluated by a laboratory testing program to be used as a basis for selection of soil design parameters and for correlation purposes. Selected tests were conducted on representative soil samples. The program consisted of tests to evaluate the existing (in-situ) moisture-density, maximum dry density and optimum moisture content, Atterberg Limits and gradational characteristics as well as direct shear strength, consolidation and "R"-value tests.

Dry Density and Moisture Content Determinations

Density and moisture content determinations were performed on both disturbed and relatively undisturbed samples from the test boring explorations in general conformance with ASTM Vol. 4.08 Part D-216. The results of these tests were used to calculate existing overburden pressures and to correlate strength and compressibility characteristics of the soils. Test results are shown on the test boring logs at the appropriate sample depths.

Maximum Dry Density

One (1) maximum dry density test was performed on representative sample of the upper clayey, silty sand subgrade soils in accordance with ASTM Vol. 4.08 Part D-1557-78. The test was conducted to facilitate classification of the soils and for correlation purposes. Test results appear on Figure No. A-22.

Atterberg Limits

Liquid Limit (LL) and Plastic Limit (PL) tests were performed on a representative sample of the clayey, silty sand subgrade soils in accordance with ASTM Vol. 4.08 Part D-4318-85. The test results were conducted to help facilitate the classification of the subgrade soils and for correlation purposes. The test results are shown graphically on Figure No. A-23.

Gradation Analysis

Gradation analyses were performed on representative samples of the clayey, silty sand subsurface soils in accordance with ASTM Vol. 4.08 Part D-422. The test results were used to classify the soil in accordance with the Unified Soil Classification System (USCS). The test results are shown graphically on Figure No. A-24.

Direct Shear Strength Test

Two (2) Direct Shear Strength tests were performed on remolded samples at a continuous rate of shearing deflection (0.02 inches per minute) in accordance with ASTM Vol. 4.08 Part D-3080-79. The test results were used to determine engineering strength properties and are shown graphically on Figure No's. A-25 and A-26.

Consolidation Tests

Two (2) Consolidation tests were performed on an undisturbed sample of the upper clayey, silty sand subgrade soils to help assess the compressibility characteristics of the near surface subgrade soils in general conformance with ASTM Vol. 4.08 Part D-2435-80.

Conventional loading increments of 100, 200, 400, ... 12,800 psf were applied after the 100 percent time of primary consolidation was identified and defined foe each loading increment. The sample was unloaded and allowed to rebound after the completion of the loading sequence. Deflection versus time readings were recorded for all load increments from 100 through 12,800 psf. The deflection corresponding to 100 percent primary consolidation was plotted on the consolidation strain versus consolidation pressure curve, which is presented on Figure No's. A-27 and A-28.

"R"-Value Tests

One (1) "R"-value test was performed on a representative sample of the near surface clayey, silty sand subgrade soils in general conformance with ASTM Vol. 4.08 Part D-2844. The test results were used to help evaluate the subgrade soil supporting and performance capabilities when subjected to vehicle traffic loading. The test results are shown on Figure No. A-29.

The following figures are attached and complete the Appendix:

Figure No. A-4	Key To Exploratory Boring Logs
Figure No's. A-5 through A-21	Boring Logs
Figure No. A-22	Maximum Dry Density Test Results
Figure No. A-23	Atterberg Limits Test Results
Figure No. A-24	Gradation Test Results
Figure No's. A-25 and A-26	Direct Shear Strength Test Results
Figure No's. A-27 and A-28	Consolidation Test Results
Figure No. A-29	Results of R (Resistance) Value Test

PRIMARY DIVISIONS			GROUP SYMBOL	SECONDARY DIVISIONS
COARSE GRAINED SOILS — MORE THAN HALF OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVELS — MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE	CLEAN GRAVELS (LESS THAN 5% FINES)	GW	Well graded gravels, gravel-sand mixtures, little or no fines.
			GP	Poorly graded gravels or gravel-sand mixtures, little or no fines.
		GRAVEL WITH FINES	GM	Silty gravels, gravel-sand-silt mixtures, non-plastic fines.
			GC	Clayey gravels, gravel-sand-clay mixtures, plastic fines.
	SANDS — MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE	CLEAN SANDS (LESS THAN 5% FINES)	SW	Well graded sands, gravelly sands, little or no fines.
			SP	Poorly graded sands or gravelly sands, little or no fines.
		SANDS WITH FINES	SM	Silty sands, sand-silt mixtures, non-plastic fines.
			SC	Clayey sands, sand-clay mixtures, plastic fines.
FINE GRAINED SOILS — MORE THAN HALF OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS — LIQUID LIMIT IS LESS THAN 50%		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
			OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS — LIQUID LIMIT IS GREATER THAN 50%		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
			CH	Inorganic clays of high plasticity, fat clays.
			OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soils.

DEFINITION OF TERMS

U.S. STANDARD SERIES SIEVE				CLEAR SQUARE SIEVE OPENINGS			
200	40	10	4	3/4"	3"	12"	

SILTS AND CLAYS	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

GRAIN SIZES

SANDS, GRAVELS AND NON-PLASTIC SILTS	BLOWS/FOOT†
VERY LOOSE	0 - 4
LOOSE	4 - 10
MEDIUM DENSE	10 - 30
DENSE	30 - 50
VERY DENSE	OVER 50

RELATIVE DENSITY

CLAYS AND PLASTIC SILTS	STRENGTH‡	BLOWS/FOOT†
VERY SOFT	0 - 1/4	0 - 2
SOFT	1/4 - 1/2	2 - 4
FIRM	1/2 - 1	4 - 8
STIFF	1 - 2	8 - 16
VERY STIFF	2 - 4	16 - 32
HARD	OVER 4	OVER 32

CONSISTENCY

†Number of blows of 140 pound hammer falling 30 inches to drive a 2 inch O.D. (1-3/8 inch I.D.) split spoon (ASTM D-1586).

‡Unconfined compressive strength in tons/sq. ft. as determined by laboratory testing or approximated by the standard penetration test (ASTM D-1586), pocket penetrometer, torvane, or visual observation.

REDMOND GEOTECHNICAL SERVICES
PO Box 20547 • Portland, Oregon 97294

KEY TO EXPLORATORY BORING LOGS
Unified Soil Classification System (ASTM D-2487)

PACIFIC SEAFOODS DISTRIBUTION FACILITY
Mukilteo, Washington

PROJECT NO.	DATE	
1390.001.G	May 1, 2015	Figure A-4

DRILLING COMPANY: Gregory Drilling RIG: CME 55 DATE: 4/10/15

BORING DIAMETER: 6.0" DRIVE WEIGHT: 140# DROP: 30" ELEVATION: 580'±

DEPTH (FEET)	BAG SAMPLE	DRIVE SAMPLE BLOWS/FOOT	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION BORING NO. B-#1
	X			25.4	ML	Dark brown, wet, soft, organic, sandy, clayey SILT (Topsoil)
	X	27		22.7	SM	Medium to orangish-brown, very moist, loose to medium dense, clayey, silty SAND with occasional gravels and roots (Highly Weathered Glacial Drift)
5					SM	Gray to gray-brown, very moist, medium dense to dense, clayey, silty SAND with gravel and cobbles (Glacial Till)
						Total Depth = 5.0 feet No groundwater encountered at time of exploration
10						
15						
20						
25						
30						

BORING LOG

PROJECT NO. 1390.001.G | PACIFIC SEAFOODS | FIGURE NO. A-5

REDMOND GEOTECHNICAL SERVICES

DRILLING COMPANY:	Gregory Drilling	RIG:	CME 55	DATE:	4/10/15
BORING DIAMETER:	6.0"	DRIVE WEIGHT:	140#	DROP:	30"
ELEVATION:	580'±				

DEPTH (FEET)	BAG SAMPLE	DRIVE SAMPLE BLOWS/FOOT	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION BORING NO. B-#2
					GM/ML	FILL: Gray-brown, very moist, medium dense, slightly organic, slightly clayey, silty and sandy GRAVEL with topsoil
	X	26		24.9	SM	NATIVE GROUND: Orangish-brown, very moist, loose to medium dense, clayey, silty SAND with occasional gravels and roots (Highly Weathered Glacial Drift)
5	X	30		20.5		
					SM	Gray to gray-brown, very moist, medium dense to dense, clayey, silty SAND with gravel and cobbles (Glacial Till)
	X	37		19.4		
10						Total Depth = 10.0 feet No groundwater encountered at time of exploration
15						
20						
25						
30						

BORING LOG

PROJECT NO. 1390.001.G	PACIFIC SEAFOODS	FIGURE NO. A-6

REDMOND GEOTECHNICAL SERVICES

DRILLING COMPANY: Gregory Drilling RIG: CME 55 DATE: 4/10/15

BORING DIAMETER: 6.0" DRIVE WEIGHT: 140# DROP: 30" ELEVATION: 580'±

DEPTH (FEET)	BAG SAMPLE	DRIVE SAMPLE BLOWS/FOOT	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION BORING NO. B-#3
					ML/ SM	FILL: Dark brown, very moist highly organic, poorly compacted, clayey, sandy SILT to silty SAND
	X	3			ML	NATIVE GROUND: Dark brown, very moist to wet, soft, highly organic, sandy, clayey SILT (OLd Topsoil Zone)
5	X	24			SM	Medium to orangish-brown, very moist, loose to medium dense, clayey, silty SAND with occasional gravel and roots (Highly Weatheted Glacial Drift)
10	X	32			SM	Gray to gray-brown, very moist, medium dense to dense, clayey, silty SAND with gravel and cobbles (Glacial Till)
						Total Depth = 11.5 feet No groundwater encountered at time of exploration
15						
20						
25						
30						

BORING LOG

PROJECT NO. 1390.001.G | PACIFIC SEAFOODS | FIGURE NO. A-7

REDMOND GEOTECHNICAL SERVICES

DRILLING COMPANY: Gregory Drilling RIG: CME 55 DATE: 4/10/15

BORING DIAMETER: 6.0" DRIVE WEIGHT: 140# DROP: 30" ELEVATION: 585'±

DEPTH (FEET)	BAG SAMPLE	DRIVE SAMPLE BLOWS/FOOT	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION BORING NO. B-#4
					ML	Dark brown, very moist to wet, soft, organic, sandy, clayey SILT (Topsoil)
					SM	Medium to orangish-brown, very moist, loose to medium dense, clayey, silty SAND with occasional gravels and roots (Highly Weathered Glacial Drift)
5	X	24		23.7		
	X	28		19.7	SM	Gray to gray-brown, very moisr, medium dense to dense, clayey, silty SAND with gravel and cobbles (Glacial Till)
10	X	33		18.8		
						Total Depth = 10.0 feet No groundwater encountered at time of exploration
15						
20						
25						
30						

BORING LOG

PROJECT NO. 1390.001.G | PACIFIC SEAFOODS | FIGURE NO. A-8

REDMOND GEOTECHNICAL SERVICES

DRILLING COMPANY: Gregory Drilling RIG: CME 55 DATE: 4/10/15

BORING DIAMETER: 6.0" DRIVE WEIGHT: 140# DROP: 30" ELEVATION: 588'±

DEPTH (FEET)	BAG SAMPLE	DRIVE SAMPLE BLOWS/FOOT	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION BORING NO. B-#5
	X	4			SM	FILL: Medium to gray-brown, moist to very moist, poorly compacted, slightly clayey, silty SAND with gravel and traces of organics
5	X	5				
					ML	NATIVE GROUND: Dark brown, very moist, soft, slightly organic, sandy, clayey SILT (Old Topsoil Zone)
	X	29			SM	Medium to orangish-brown, very moist, loose to medium dense, clayey, silty SAND with occasional gravels and roots (Highly Weathered Glacial Drift)
10					SM	Gray to gray-brown, very moist, medium dense to dense, clayey, silty SAND with gravel and cobbles (Glacial Till)
15						Total Depth = 10.0 feet No groundwater encountered at time of exploration
20						
25						
30						

BORING LOG

PROJECT NO. 1390.001.G | PACIFIC SEAFOODS | FIGURE NO. A-9

REDMOND GEOTECHNICAL SERVICES

DRILLING COMPANY: Gregory Drilling RIG: CME 55 DATE: 4/10/15

BORING DIAMETER: 6.0" DRIVE WEIGHT: 140# DROP: 30" ELEVATION: 585'±

DEPTH (FEET)	BAG SAMPLE	DRIVE SAMPLE BLOWS/FOOT	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION BORING NO. B-#6
						FILL: Brown, moist, highly organic, Bark Chips and Topsoil
	X	6		26.8	ML	NATIVE GROUND: Dark brown, very moist to wet, soft, organic, sandy, clayey SILT (Topsoil)
5	X	27		23.0	SM	Medium to orangish-brown, very moist, loose to medium dense, clayey, silty SAND with occasional gravel and roots (Highly Weathered Glacial Drift)
10	X	35		18.5	SM	Gray to gray-brown, very moist, medium dense to dense, clayey, silty SAND with gravel and cobbles (Glacial Till)
15	X	39		18.1		
						Total Depth = 15.0 feet No groundwater encountered at time of exploration
20						
25						
30						

BORING LOG

PROJECT NO. 1390.001.G | PACIFIC SEAFOODS | FIGURE NO. A-10

REDMOND GEOTECHNICAL SERVICES

DRILLING COMPANY: Gregory Drilling RIG: CME 55 DATE: 4/10/15

BORING DIAMETER: 6.0" DRIVE WEIGHT: 140# DROP: 30" ELEVATION: 585'±

DEPTH (FEET)	BAG SAMPLE	DRIVE SAMPLE BLOWS/FOOT	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION BORING NO. B-#7
					ML	Dark brown, very moist to wet, soft, organic, sandy, clayey SILT (Topsoil)
	X	27			SM	Medium to orangish-brown, very moist to wet, loose, clayey, silty SAND with occasional gravel and roots (Highly Weathered Glacial Drift)
5	X	26			SM	Gray to gray-brown, very moist, medium dense to dense, clayey, silty SAND with gravel and cobbles (Glacial Till)
10	X	33				Total Depth = 11.5 feet Minor groundwater seepage encountered at 2.0 feet at time of exploration
15						
20						
25						
30						

BORING LOG

PROJECT NO. 1390.001.G | PACIFIC SEAFOODS | FIGURE NO. A-11

REDMOND GEOTECHNICAL SERVICES

DRILLING COMPANY: Gregory Drilling	RIG: CME 55	DATE: 4/10/15
BORING DIAMETER: 6.0"	DRIVE WEIGHT: 140#	DROP: 30"	ELEVATION: 582'±

DEPTH (FEET)	BAG SAMPLE	DRIVE SAMPLE BLOWS/FOOT	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION BORING NO. B-#8
					GM	FILL: Gray-brown, moist, moderately well compacted, silty, sandy GRAVEL (Base)
					ML	NATIVE GROUND: Dark brown, moist to very moist, medium stiff to stiff, clayey, sandy SILT with trace of organics (Old Topsoil Zone)
	X	23				
5	X	34			SM	Medium to orangish-brown, very moist, medium dense, clayey, silty SAND with occasional gravel and roots (Highly Weatheted Glacial Drift)
	X	36			SM	Gray to gray-brown, very moist, medium dense to dense, clayey, silty SAND with gravel and cobbles (Glacial Till)
10						Total Depth = 10.0 feet No groundwater encountered at time of exploration
15						
20						
25						
30						

BORING LOG

PROJECT NO. 1390.001.G	PACIFIC SEAFOODS	FIGURE NO. A-12

REDMOND GEOTECHNICAL SERVICES

DRILLING COMPANY: Gregory Drilling RIG: CME 55 DATE: 4/10/15

BORING DIAMETER: 6.0" DRIVE WEIGHT: 140# DROP: 30" ELEVATION: 578'±

DEPTH (FEET)	BAG SAMPLE	DRIVE SAMPLE BLOWS/FOOT	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION BORING NO. B-#9
					PCC	Portland Cement Concrete Slab
	X	5		29.6	GM	FILL: Gray-brown, damp, moderately well compacted, silty, sandy GRAVEL (Base)
5	X	24		21.3	ML	NATIVE GROUND: Dark brown, very moist, medium stiff, sandy, clayey SILT with trace of organics (Old Topsoil Zone)
					SM	Medium to orangish-brown, very moist, medium dense, clayey, silty SAND with occasional gravel and roots (Highly Weathered Glacial Drift)
10	X	40		17.7	SM	Gray to gray-brown, very moist medium dense to dense, clayey, silty SAND with gravel and cobbles (Glacial Till)
						Total Depth = 11.5 feet No groundwater encountered at time of exploration
15						
20						
25						
30						

BORING LOG

PROJECT NO. 1390.001.G | PACIFIC SEAFOODS | FIGURE NO. A-13

REDMOND GEOTECHNICAL SERVICES

DRILLING COMPANY: Gregory Drilling RIG: CME 55 DATE: 4/10/15

BORING DIAMETER: 6.0" DRIVE WEIGHT: 140# DROP: 30" ELEVATION: 581'±

DEPTH (FEET)	BAG SAMPLE	DRIVE SAMPLE BLOWS/FOOT	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION BORING NO. B-#10
					ML	Dark brown, very moist to wet, very soft, highly organic, sandy, clayey SILT (Topsoil)
	X	21			SM	Medium to orangish-brown, wet, loose to medium dense, clayey, silty SAND with occasional gravel and roots (Highly Weatheted Glacial Drift)
5	X	28			SM	Gray to gray-brown, very moist, medium dense to dense, clayey, silty SAND with gravel and cobbles (Glacial Till)
	X	35				
10						Total Depth = 10.0 feet No groundwater encountered at time of exploration
15						
20						
25						
30						

BORING LOG

PROJECT NO. 1390.001.G | PACIFIC SEAFOODS | FIGURE NO. A-14

REDMOND GEOTECHNICAL SERVICES

DRILLING COMPANY: Gregory Drilling RIG: CME 55 DATE: 4/10/15

BORING DIAMETER: 6.0" DRIVE WEIGHT: 140# DROP: 30" ELEVATION: 588'±

DEPTH (FEET)	BAG SAMPLE	DRIVE SAMPLE BLOWS/FOOT	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION BORING NO. B-#11
5	x	4			SM	FILL: Medium to gray-brown, moist to very moist, poorly compacted, slightly clayey, silty SAND with gravel and traces of organics
	X	5				
					ML	NATIVE GROUND: Dark brown, very moist, soft, slightly organic, sandy, clayey SILT (Old Topsoil Zone)
10	X	23			SM	Medium to orangish-brown, very moist, loose to medium dense, clayey, silty SAND with occasional gravel and roots (Highly Weatheted Glacial Drift)
15	X	36			SM	Gray to gray-brown, very moist, medium dense to dense, clayey, silty SAND with gravel and cobbles (Glacial Till)
						Total Depth = 15.0 feet No groundwater encountered at time of exploration
20						
25						
30						

BORING LOG

PROJECT NO. 1390.001.G | PACIFIC SEAFOODS | FIGURE NO. A-15

REDMOND GEOTECHNICAL SERVICES

DRILLING COMPANY: Gregory Drilling	RIG: CME 55	DATE: 4/10/15
BORING DIAMETER: 6.0"	DRIVE WEIGHT: 140#	DROP: 30"	ELEVATION: 582'±

DEPTH (FEET)	BAG SAMPLE	DRIVE SAMPLE BLOWS/FOOT	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION BORING NO. B-#12
					ML	Dark brown, wet to saturated, very soft highly organic, sandy, clayey SILT (Topsoil)
	X	22			SM	Medium to orangish-brown, wet to saturated, loose, clayey, silty SAND with occasional gravel and roots (Highly Weathered Glacial Drift)
5	X	33			SM	Gray to gray-brown, very moist, medium dense to dense, clayey, silty SAND with gravel and cobbles (Glacial Till)
10						Total Depth = 6.5 feet Groundwater seepage encountered at a depth of 2 feet at time of exploration
15						
20						
25						
30						

BORING LOG

PROJECT NO. 1390.001.G	PACIFIC SEAFOODS	FIGURE NO. A-16

REDMOND GEOTECHNICAL SERVICES

DRILLING COMPANY: Gregory Drilling	RIG: CME 55	DATE: 4/10/15
BORING DIAMETER: 6.0"	DRIVE WEIGHT: 140#	DROP: 30"	ELEVATION: 578'±

DEPTH (FEET)	BAG SAMPLE	DRIVE SAMPLE BLOWS/FOOT	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION BORING NO. B-#13
					ML	Dark brown, wet to saturated, very soft, highly organic, sandy, clayey SILT (Topsoil)
	X	27			SM	Medium to orangish-brown, wet to saturated, loose, clayey, silty SAND with occasional gravel and roots (Highly Weathered Glacial Drift)
5					SM	Gray to gray-brown, very moist, medium dense to dense, clayey, silty SAND with gravel and cobbles (Glacial Till)
						Total Depth = 5.0 feet Groundwater seepage encountered at a depth of 1.0 feet at time of exploration
10						
15						
20						
25						
30						

BORING LOG

PROJECT NO. 1390.001.G	PACIFIC SEAFOODS	FIGURE NO. A-17

REDMOND GEOTECHNICAL SERVICES

DRILLING COMPANY: Gregory Drilling RIG: CME 55 DATE: 4/10/15

BORING DIAMETER: 6.0" DRIVE WEIGHT: 140# DROP: 30" ELEVATION: 574'±

DEPTH (FEET)	BAG SAMPLE	DRIVE SAMPLE BLOWS/FOOT	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION BORING NO. B-#14
					ML	Dark brown, wet to saturated, very soft highly organic, sandy, clayey SILT (Topsoil)
	X	24			SM	Medium to orangish-brown, wet to saturated, loose, clayey, silty SAND with occasional gravel and roots (Highly Weathered Glacial Drift)
5					SM	Gray to gray-brown, very moist, medium dense to dense, clayey, silty SAND with gravel and cobbles (Glacial Till)
						Total Depth = 5.0 feet Groundwater seepage encountered at a depth of 1.0 feet at time of drilling
10						
15						
20						
25						
30						

BORING LOG

PROJECT NO. 1390.001.G | PACIFIC SEAFOODS | FIGURE NO. A-18

REDMOND GEOTECHNICAL SERVICES

DRILLING COMPANY: Gregory Drilling RIG: CME 55 DATE: 4/10/15

BORING DIAMETER: 6.0" DRIVE WEIGHT: 140# DROP: 30" ELEVATION: 569'±

DEPTH (FEET)	BAG SAMPLE	DRIVE SAMPLE BLOWS/FOOT	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION BORING NO. B-#15
					ML	Dark brown, saturated, very soft, highly organic, sandy, clayey SILT (Topsoil)
	X	26			SM	Medium to orangish-brown, wet to saturated, loose, clayey, silty SAND with occasional gravel and roots (Highly Weathered Glacial Drift)
5					SM	Gray to gray-brown, very moist, medium dense to dense, clayey, silty SAND with gravel and cobbles (Glacial Till)
						Total Depth = 5.0 feet Groundwater encountered above surface grades at time of exploration
10						
15						
20						
25						
30						

BORING LOG

PROJECT NO. 1390.001.G | PACIFIC SEAFOODS | FIGURE NO. A-19

REDMOND GEOTECHNICAL SERVICES

DRILLING COMPANY: Gregory Drilling RIG: CME 55 DATE: 4/10/15

BORING DIAMETER: 6.0" DRIVE WEIGHT: 140# DROP: 30" ELEVATION: 574'

DEPTH (FEET)	BAG SAMPLE	DRIVE SAMPLE BLOWS/FOOT	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION BORING NO. B-#16
						FILL: Bark Chjps
	X	24			ML	NATIVE GROUND: Dark brown, saturated, very soft, highly organic, sandy, clayey SILT (OLd Topsoil Zone)
5					SM	Medium to orangish-brown, wet to saturated, loose, clayey, silty SAND with occasional gravel and roots (Highly Weathered Glacial Drift)
					SM	Gray to gray-brown, very moist, medium dense to dense, clayey, silty SAND with gravel and cobbles (Glacial Till)
10						Total Depth = 5.0 feet Groundwater encountered at the ground surface at time of exploration
15						
20						
25						
30						

BORING LOG

PROJECT NO. 1390.001.G | PACIFIC SEAFOODS | FIGURE NO. A-20

REDMOND GEOTECHNICAL SERVICES

DRILLING COMPANY:	Gregory Drilling	RIG:	CME 55	DATE:	4/10/15
BORING DIAMETER:	6.0"	DRIVE WEIGHT:	140#	DROP:	30"
ELEVATION:	580'±				

DEPTH (FEET)	BAG SAMPLE	DRIVE SAMPLE BLOWS/FOOT	DRY DENSITY (pcf)	MOISTURE CONTENT (%)	SOIL CLASS. (U.S.C.S.)	SOIL DESCRIPTION BORING NO. B-#17
					ML	Dark brown, wet to saturated, very soft highly organic, sandy, clayey SILT (Topsoil)
	X	28			SM	Medium to orangish-brown, wet to saturated, loose, clayey, silty SAND with occasional gravel and roots (Highly Weathered Glacial Drift)
5					SM	Gray to gray-brown, very moist, medium dense to dense, clayey, silty SAND with gravel and cobbles (Glacial Till)
						Total Depth = 5.0 feet Groundwater encountered at the ground surface at time of exploration
10						
15						
20						
25						
30						

BORING LOG

PROJECT NO. 1390.001.G	PACIFIC SEAFOODS	FIGURE NO. A-21

REDMOND GEOTECHNICAL SERVICES

MAXIMUM DENSITY TEST RESULTS

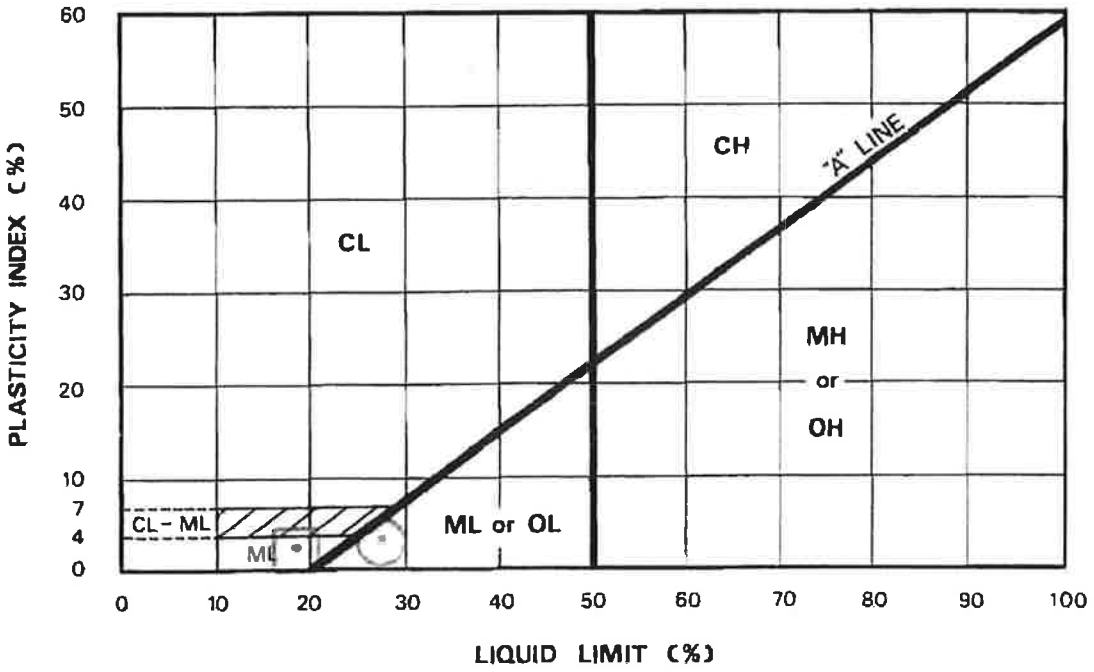
SAMPLE LOCATION	SOIL DESCRIPTION	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE CONTENT (%)
B-#1 @ 1.0'	Medium to orangish-brown, clayey, silty SAND with gravel	108.0	14.5
B-#1 @ 3.5'	Gray to gray-brown, clayey, silty SAND with gravel and cobbles	112.0	13.0

EXPANSION INDEX TEST RESULTS

SAMPLE LOCATION	INITIAL MOISTURE (%)	COMPACTED DRY DENSITY (pcf)	FINAL MOISTURE (%)	VOLUMETRIC SWELL (%)	EXPANSION INDEX	EXPANSIVE CLASS.

MAXIMUM DENSITY & EXPANSION INDEX TEST RESULTS

PROJECT NO.: 1390.001.G	PACIFIC SEAFOODS	FIGURE NO.: A-22



KEY SYMBOL	BORING NO.	SAMPLE DEPTH (feet)	NATURAL WATER CONTENT %	LIQUID LIMIT %	PLASTICITY INDEX %	PASSING NO. 200 SIEVE %	LIQUIDITY INDEX	UNIFIED SOIL CLASSIFICATION SYMBOL
○	B-#1	1.0	25.4	28.2	3.9	32.2		ML
□	B-#1	3.5	22.7	19.1	3.1	27.1		ML

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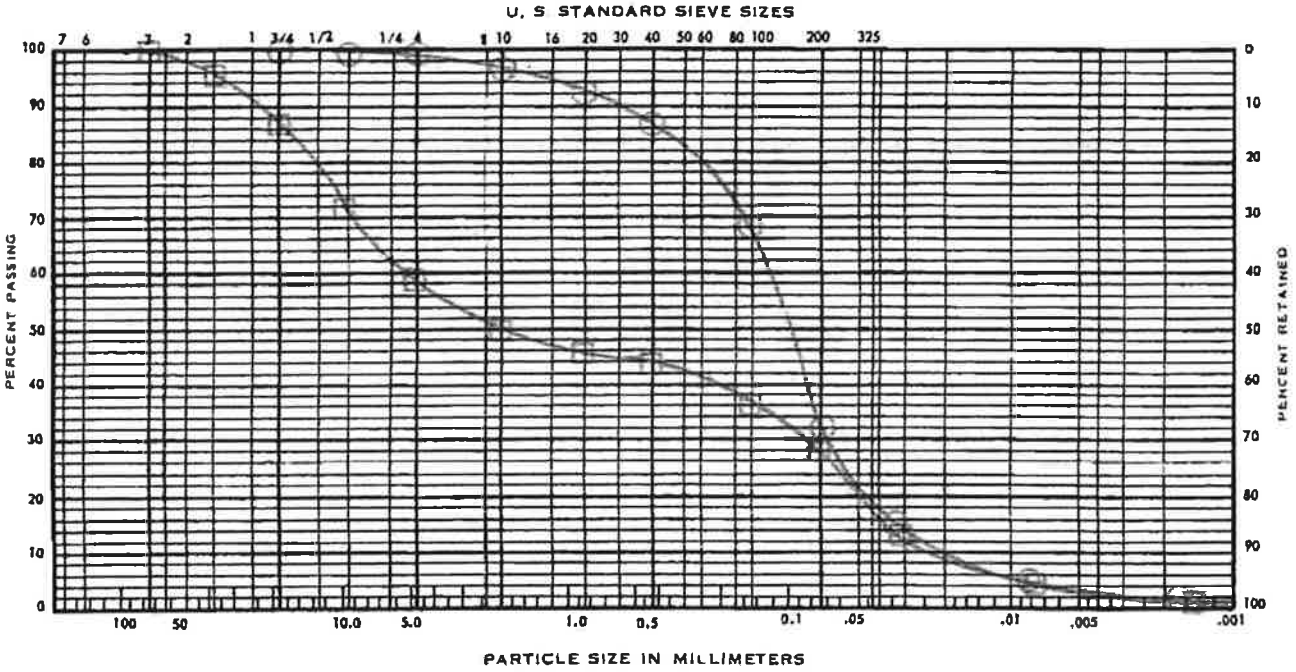
PLASTICITY CHART AND DATA

PACIFIC SEAFOODS DISTRIBUTION FACILITY
Mukilteo, Washington

PROJECT NO.	DATE	
1390.001.G	May 1, 2015	Figure A-23

UNIFIED SOIL CLASSIFICATION SYSTEM

(ASTM D 422-72)



COBBLES	GRAVEL		SAND			SILT AND CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

KEY SYMBOL	BORING NO.	SAMPLE DEPTH (feet)	ELEV. (feet)	UNIFIED SOIL CLASSIFICATION SYMBOL	SAMPLE DESCRIPTION
⊖	B-#1	1.0		SM	Medium to orangish-brown, clayey, silty SAND with occasional gravel
⊖	B-#1	3.5		SM	Gray to gray-brown, clayey, silty SAND with gravel and cobbles

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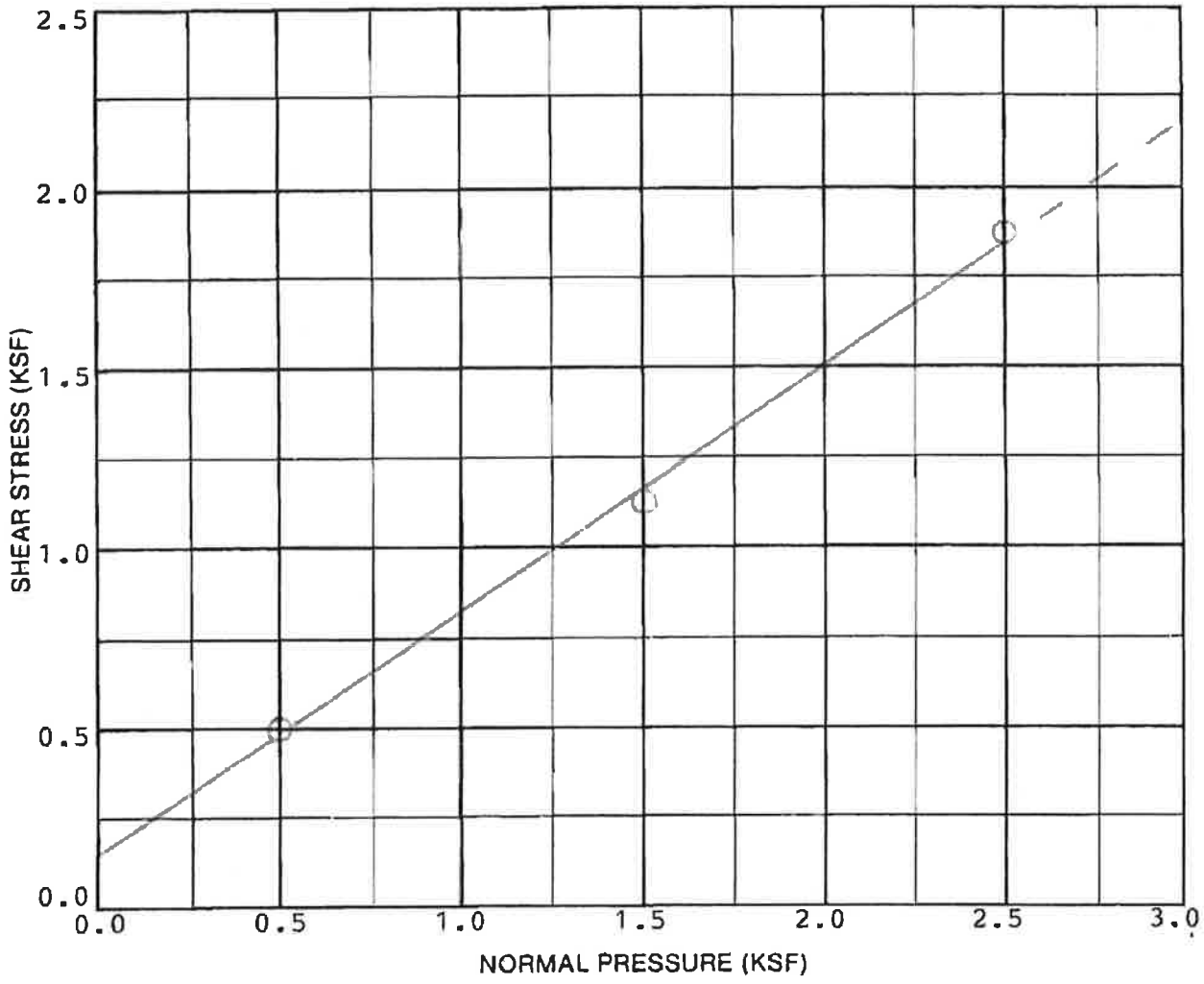
GRADATION TEST DATA

PACIFIC SEAFOODS DISTRIBUTION FACILITY
Mukilteo, Washington

PROJECT NO.	DATE	FIGURE
1390.001.G	May 1, 2015	A-24



SAMPLE DATA	
DESCRIPTION: Medium to orangish-brown clayey, silty SAND (Remolded)	
BORING NO.: B-#1	
DEPTH (ft.): 1.0	ELEVATION (ft):
TEST RESULTS	
APPARENT COHESION (C): 150 psf	
APPARENT ANGLE OF INTERNAL FRICTION (Φ): 32°	

TEST DATA				
TEST NUMBER	1	2	3	4
NORMAL PRESSURE (KSF)	0.5	1.5	2.5	
SHEAR STRENGTH (KSF)	0.5	1.1	1.9	
INITIAL H_2O CONTENT (%)	14.5	14.5	14.5	
FINAL H_2O CONTENT (%)	14.2	12.1	8.8	
INITIAL DRY DENSITY (PCF)	98.0	98.0	98.0	
FINAL DRY DENSITY (PCF)	99.6	103.3	105.7	
STRAIN RATE: 0.02 inches per minute				

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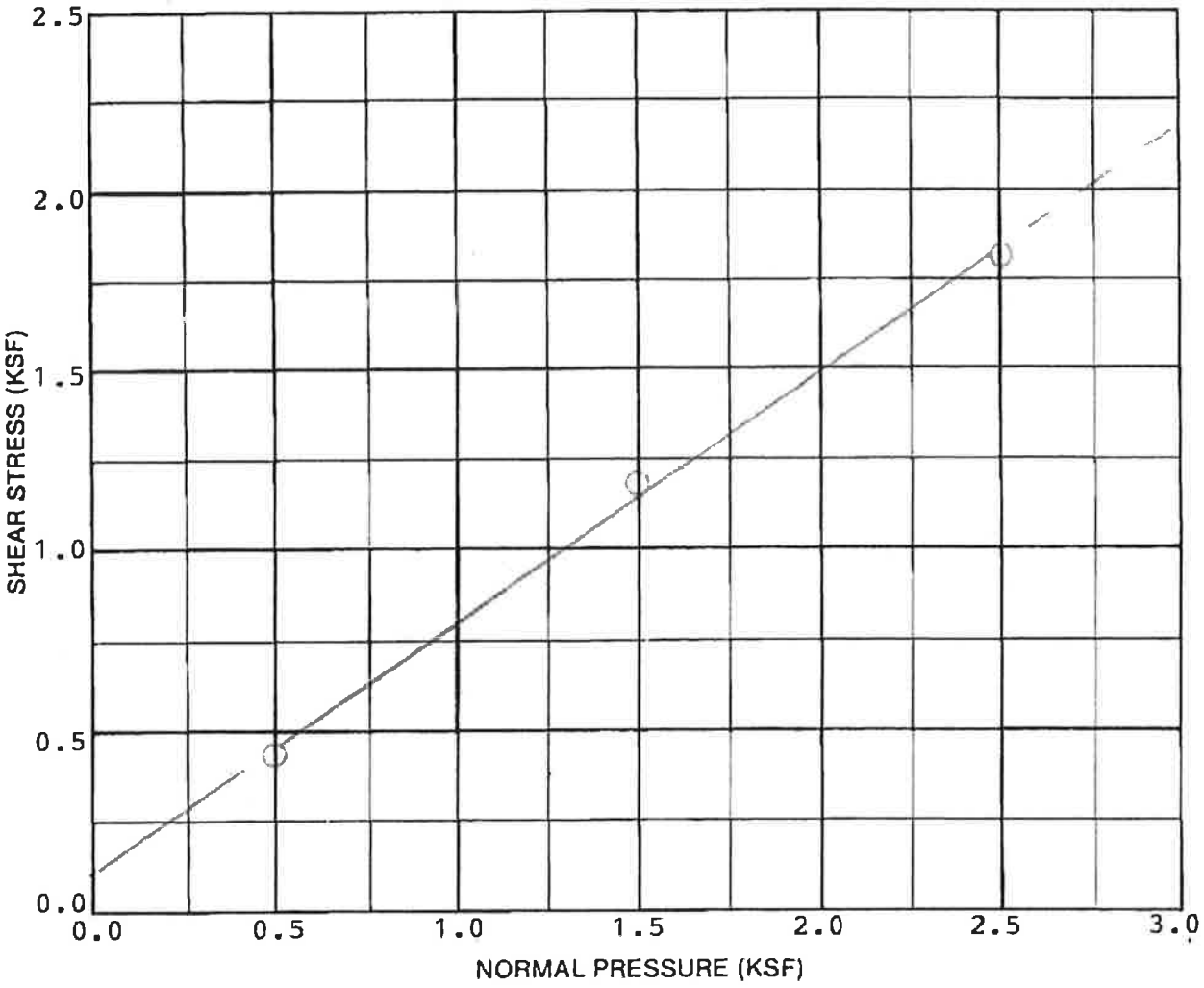
DIRECT SHEAR TEST DATA

PACIFIC SEAFOODS DISTRIBUTION FACILITY
Mukilteo, Washington

PROJECT NO.	DATE	
1390.001.G	May 1, 2015	Figure A-25



SAMPLE DATA	
DESCRIPTION: Gray to gray-brown, clayey, silty SAND (Remolded)	
BORING NO: B-#1	
DEPTH (ft.): 3.5	ELEVATION (ft):
TEST RESULTS	
APPARENT COHESION (C): 100 psf	
APPARENT ANGLE OF INTERNAL FRICTION (Φ): 34°	

TEST DATA				
TEST NUMBER	1	2	3	4
NORMAL PRESSURE (KSF)	0.5	1.5	2.5	
SHEAR STRENGTH (KSF)	0.45	1.20	1.80	
INITIAL H_2O CONTENT (%)	13.0	13.0	13.0	
FINAL H_2O CONTENT (%)	12.6	10.1	8.5	
INITIAL DRY DENSITY (PCF)	99.0	99.0	99.0	
FINAL DRY DENSITY (PCF)	99.8	103.6	106.7	
STRAIN RATE: 0.02 inches per minute				

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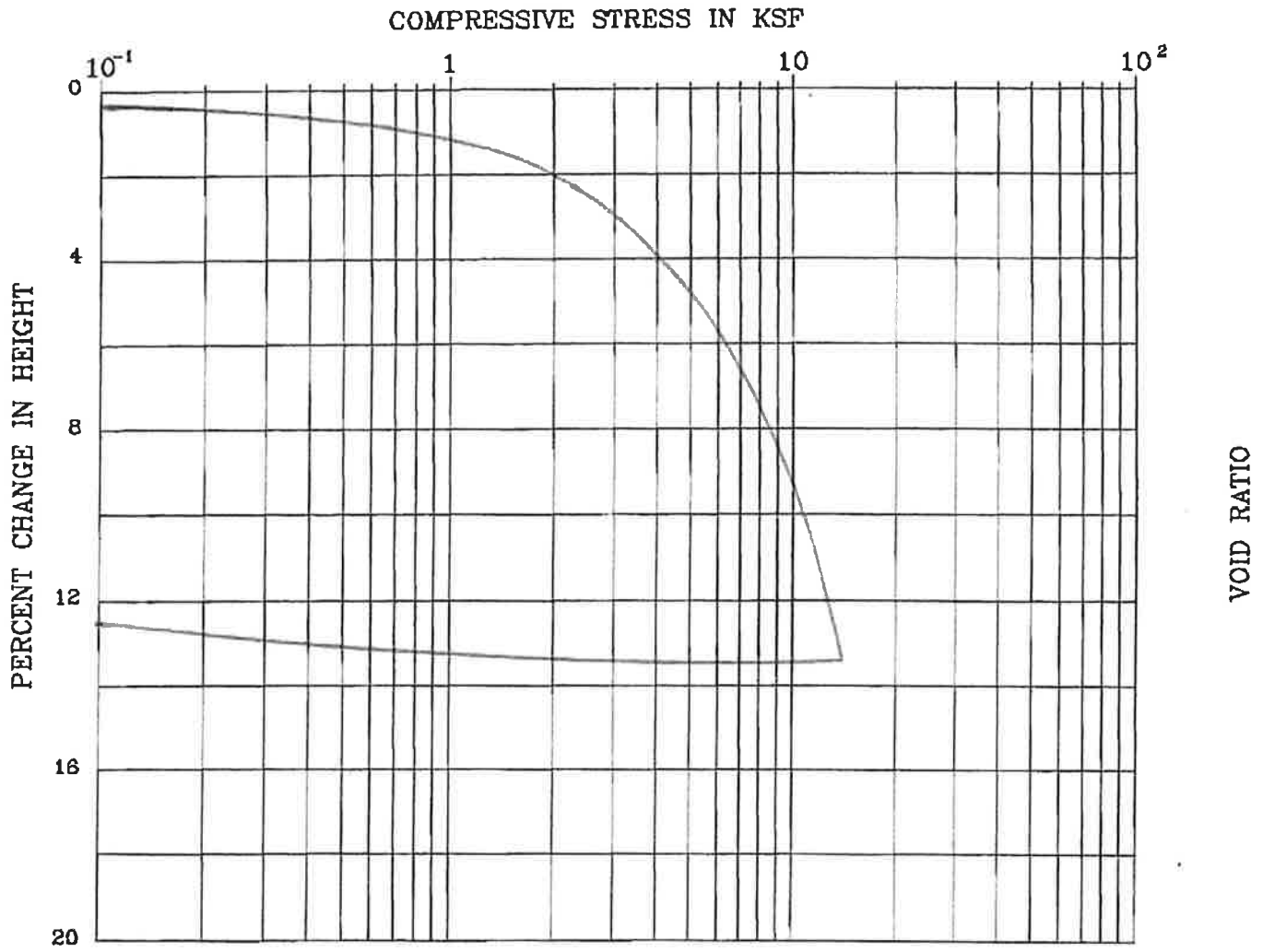
DIRECT SHEAR TEST DATA

PACIFIC SEAFOODS DISTRIBUTION FACILITY
Mukilteo, Washington

PROJECT NO	DATE	
1390.001.G	May 1, 2015	Figure A-26



BORING : B-#6
DEPTH (ft) : 3.0
SPEC. GRAVITY : 2.5 (assumed)

DESCRIPTION : clayey, silty SAND (SM)
LIQUID LIMIT : 28.2
PLASTIC LIMIT : 24.3

	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	26.4	86.7	88.7	
FINAL	16.6	99.3	92.9	

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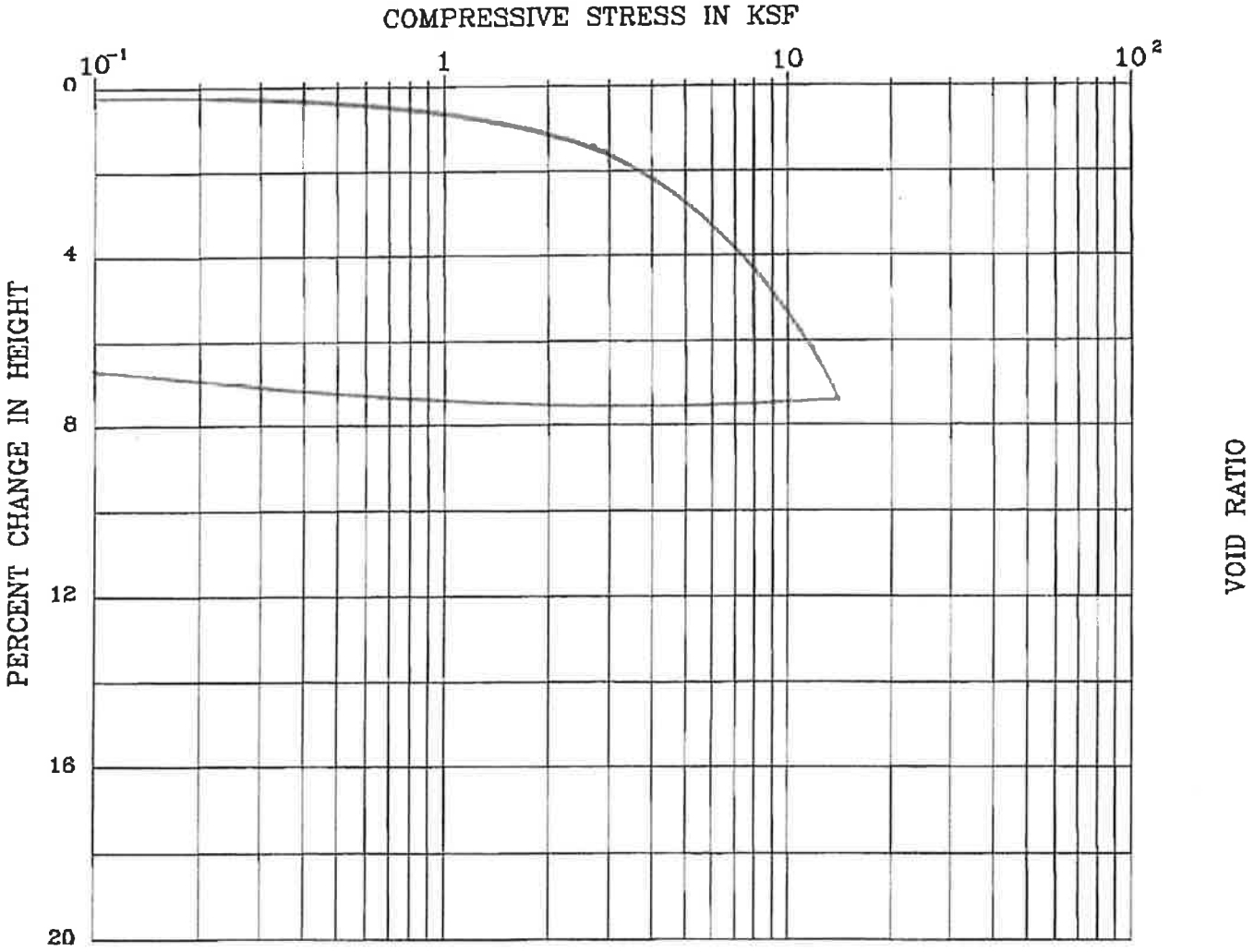
CONSOLIDATION TEST DATA

PACIFIC SEAFOODS DISTRIBUTION FACILITY
Mukilteo, Washington

PROJECT NO.	DATE	
1390.001.G	May 1, 2015	Figure A-27



BORING :B-$3 (Remolded) DESCRIPTION :clayey, silty SAND (SM)
DEPTH (ft) :3.0 LIQUID LIMIT :28.2
SPEC. GRAVITY :2.5 (assumed) PLASTIC LIMIT :24.3

	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	PERCENT SATURATION	VOID RATIO
INITIAL	15.0	97.5	91.0	
FINAL	10.2	104.4	94.7	

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CONSOLIDATION TEST DATA

PACIFIC SEAFOODS DISTRIBUTION FACILITY
Mukilteo, Washington

PROJECT NO.	DATE	
1390.001.G	May 1, 2015	Figure A-28

RESULTS OF R (RESISTANCE) VALUE TESTS

SAMPLE LOCATION: B-#1

SAMPLE DEPTH: 1.0 feet bgs

Specimen	A	B	C
Exudation Pressure (psi)	219	329	431
Expansion Dial (o.oool")	0	1	2
Expansion Pressure (psf)	0	3	8
Moisture Content (%)	17.3	14.1	10.7
Dry Density (pcf)	94.4	99.1	103.7
Resistance Value, "R"	22	34	45
"R"-Value at 300 psi Exudation Pressure = 33			

SAMPLE LOCATION: B-#16

SAMPLE DEPTH: 3.5 feet bgs

Specimen	A	B	C
Exudation Pressure (psi)	209	326	433
Expansion Dial (0.0001")	0	1	2
Expansion Pressure (psf)	0	3	8
Moisture Content (%)	17.6	14.5	11.1
Dry Density (pcf)	93.9	98.8	102.6
Resistance Value "R"	20	32	43
"R"-Value at 300 psi Exudation Pressure = 31			